

REMARKS

The application has been carefully reviewed in light of the Office Action dated September 17, 2003. Claims 1, 16, 19 and 20 have been amended. Claims 1-20 are pending in this case.

Claims 1-4, 6, 8-14 and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakajima et al. (U.S. Patent No. 6,181,314 B1) in view of Negishi et al. (U.S. Patent No. 5,528,241) and further in view of Yamagata et al. (U.S. Patent Application Publication No. US# 2001/0028336 A1). The rejection is respectfully traversed and reconsideration is respectfully requested.

Nakajima discloses a liquid crystal display device having output buffers corresponding to column lines, and comprising analog switches provided between output ends of the output buffers and the column lines respectively, and a switch controller for on-off controlling the analog switches. A DA converter is provided in the preceding stage of the output buffers, and the switch controller turns off the analog switches during a DA conversion period of the DA converter or during a precharge period prior to DA conversion, and turns on the analog switches during a predetermined period other than such periods.

In Fig. 2 of Nakajima, n output buffers 16 are connected between output circuit 17 and capacitance loads C1 to Cn through analog switches 18-1 to 18-n, which creates a problem since building in as many analog circuits as signal lines pulls down the yield of the display unit. (See specification page 1, lines 11-13).

As noted in the Office Action, Nakajima fails to teach or suggest impedance converters connected to an output of the ladder resistor. In order to overcome this deficiency, the Office Action relies on Negishi. Nakajima and Negishi fail to teach or

suggest gray level voltage wires constituting output lines connected to impedance converters, and a gray level voltage selector connected to the gray level voltage wires. In order to overcome this deficiency, the Office Action relies on Yamagata. Nakajima, Negishi and Yamagata fail to teach or suggest all the limitations of claims 1 and 20.

Nakajima, Negishi and Yamagata whether considered alone or in combination, fail to teach or suggest an image display apparatus "gray level voltage selecting means selectively connecting said gray level voltage wires to said plurality of signal lines, the number of said impedance converters being matched with the number of said gray level voltage wires and a gray level voltage selector connected to the gray level voltage wires."

Nakajima, Negishi and Yamagata whether considered alone or in combination, fail to teach or suggest an image display terminal system having "gray level voltage wires connected to the output of the ladder resistor via impedance converters, wherein the number of said impedance converters matches the number of said gray level voltage wires."

The structures of claims 1 and 20 will provide an outstanding effect to analog circuits such as impedance converters since there need not be as many impedance converters as signal lines. The impedance converters in the structures of claims 1 and 20 need only be as many as the grey level voltage wires. Nakajima, Negishi and Yamagata fail to teach or suggest such a limitation.

Accordingly, the rejection of claims 1 and 20 should be withdrawn. Claims 2-15 depend from claim 1 and are allowable over the combination of Nakajima, Negishi and Yamagata at least for the reasons mentioned above with respect to claim 1 and on their own merit.

Claims 15-19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakajima, Negishi and Yamagata in view of Kane (U.S. Patent No. 6,229,508 B1). Applicants respectfully request reconsideration.

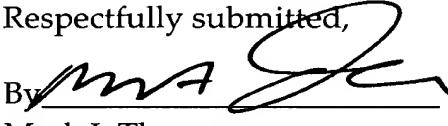
As mentioned above with respect to claim 1, Nakajima, Negishi and Yamagata whether considered alone or in combination, fail to teach or suggest that "the number of said impedance converters matches the number of said gray level voltage wires." In addition, Kane fails to teach or suggest that "the number of said impedance converters matches the number of said gray level voltage wires."

Therefore, Nakajima, Negishi, Yamagata and Kane whether considered alone or in combination, fail to teach or suggest all the limitations of claims 16 and 19. Accordingly, the rejection of claims 16 and 19 should be withdrawn. Claim 15 depends from claim 1 and is allowable over the combination of Nakajima, Negishi, Yamagata and Kane at least for the reasons mentioned above with respect to claim 1. Claims 17 and 18 depend from claim 16 and are allowable over the combination of Nakajima, Negishi, Yamagata and Kane at least for the reasons mentioned above with respect to claim 16.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Dated: February 17, 2004

Respectfully submitted,

By 

Mark J. Thronson

Registration No.: 33,082

DICKSTEIN SHAPIRO MORIN &
OSHINSKY LLP

2101 L Street NW
Washington, DC 20037-1526
(202) 785-9700
Attorney for Applicant